Papers on Neogene Mollusks of the North Pacific Margin: An Introduction

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THE EIGHT PAPERS dealing with Neogene (Miocene and Pliocene) molluscan paleontology and biostratigraphy of the North Pacific margin included in this issue were presented at the First International Congress on Pacific Neogene Stratigraphy held in Tokyo, Japan, May 17-21, 1976. These papers interrelate the Neogene biochronologies of different sectors of the North Pacific and trace the origin and development of the highly endemic Neogene molluscan faunas of this region. Moreover, they provide an overview of the status of knowledge of Miocene and Pliocene mollusks of the North Pacific and bring into focus the importance of molluscan research as a key to improved understanding of the Neogene history of the Pacific basin.

Two papers synthesize data on the faunal sequences of the northern margin of the Pacific (Alaska) and the middle latitudes of the western north Pacific (Japan). Kiyotaka Chinzei's paper on the Japanese Neogene brings together the extensive biostratigraphic data from the Japanese Islands to detail the geographic shifts of warm and cool water faunas in response to climatic change. He also distinguishes ocean, coastal, and embayment molluscan faunas in addition to benthic communities related to bottom topography and sediment texture. Richard Allison's review and analysis of molluscan data from coastal Alaska clarifies the age and correlation of Neogene formations and sets the stage for much-needed detailed paleontologic study of the rich, mollusk-bearing sequences of the Gulf of Alaska and the Alaskan Peninsula.

Papers by Tamio Kotaka, Koichiro Masuda, and Clifford Nelson deal with three of the best groups of mollusks for provincial and interregional correlation: the Turritellidae; Pectinidae, and Neptuneidae, respectively. The neptuneids seem to be best suited for interrelating the faunal sequences of the cool, high latitude parts of the North Pacific and show promise of striking comparisons with the North Atlantic. Turritellids, by virtue of their warmer water distributions are most useful in the biochronology of the middle and low latitudes, as indicated by Kotaka. The Pectinidae are excellent biochronologic indicators in all latitudes although Masuda shows that their Neogene distribution in the higher latitudes of the North Pacific is most promising in circum-North Pacific correlation.

Temporal calibration of the molluscan sequence of southern Japan with the standard European Neogene sections through tie-ins with planktonic foraminifers is treated by Ryuchi Tsuchi and Masako Ibaraki. This paper exemplifies the kind of research that is needed to correlate the oceanic microfossil sequences defined by recent deep-sea drilling, with the shallow water, nearshore sequences that are best characterized by mollusks and other larger invertebrates. Some aspects of high latitude correlation by mollusks and siliceous microfossils such as diatoms are considered by Yuri Gladenkov based on studies of the Neogene of Kamchatka and Sakhalin.

The origins of the diverse and well-known Pliocene molluscan fauna of northern Japan are found in genera that evolved in the western North Pacific during the late Paleogene and early Neogene or which migrated into this region from the Tethyan region to the southwest. According to Frank Kilmer the chronology of dispersal events of these Tethyan genera is similar to that observed in New Zealand but the rates of generic extinction are dissimilar. These papers were presented at sectional meetings on mollusks at the Neogene Congress which were attended by 30 to 40 specialists, mostly from the western North Pacific. As a consequence of the intense interest in Neogene molluscan phylogeny, biostratigraphy, and biogeography generated by these presentations, a cooperative effort to make these data and interpretations more widely available through publication was undertaken by Tsugio Shuto and myself. The only previously available information was in the form of brief resumes (see SAITO & UJIÉ, 1977). These sessions also led to extended discussions of molluscan distributions around the North Pacific rim and to the formation of two working groups to stimulate and coordinate this kind of research: a working group on Mollusca (co-chairmen Sa-